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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,633	07/02/2001	Ronald P. Schmidt	TA-00519	2321

7590 11/29/2002

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EXAMINER
CHAN, SING P

ART UNIT	PAPER NUMBER
1734	4

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/898,633	SCHMIDT, RONALD P.	
	Examiner	Art Unit	
	Sing P Chan	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "generally" in claims 5 and 6 is a relative term which renders the claim indefinite. The term "generally" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The terms "generally perpendicular" and "generally parallel" are unclear. For the purpose of examination, "perpendicular" and "parallel" will be assumed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1, 4, 5, 8, 9, and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance).

Regarding claims 1, 4, 9, and 12, Wanthal et al discloses a method of bonding a 3-D "pi" textile preform to form joints. The method includes provide a 3-D "pi" textile preform, i.e. a base with two legs, infused with resin and staged, the base of the preform is placed on a debulked lay-up, the web is inserted into the clevis and the assembly is bagged and cured. (Page 13, lines 9-22)

Regarding claim 5, the components jointed by using the "pi" textile preform in Wanthal et al is perpendicular to the each other. (Figure 8)

Regarding claim 8, Wanthal et al discloses the preform is a dry material. (Page, lines 27-29)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 3, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Hartman (U.S. 3,639,189).

Wanthal et al is silent as to the adhesive have a tensile strength less than 6500 pounds per square inch and a peel strength greater than 15 pounds per linear inch. However, one in the art would appreciate that any adhesive with a tensile strength less than 6500 pounds per square inch and a peel strength greater than 15 pounds per

linear inch can be used to bond the joints together and such adhesive are well known and conventional as shown for example by Hartman. Hartman discloses an adhesive composition with a tensile strength of 2200 pounds per square inch and a peel strength of 40 and 45 pounds per inch. (Col 3, lines 24-57) One reading Hartman would be motivated to use the adhesive, which provide excellent adhesion to a variety of substrate such as metal.

It would have been obvious to one skilled in the art at the time the invention was made to provide an adhesive with a tensile strength of less than 6500 pounds per square inch and a peel strength of over 15 pounds per inch as disclosed by Hartman in the method of Wanthal et al to provide a strong adhesive with excellent adhesion to a variety of substrate such as metal to ensure a strong and reliable joint.

8. Claims 6, 7, 10, 11, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Bersuch et al (3-D Composite in Primary Aircraft Structure Joints).

Regarding claim 6, Wanthal et al is silent as to orienting the components parallel to each other. Bersuch et al discloses the components are oriented parallel to each other in some 3-D joints. (Figure 1)

It would have been obvious to one skilled in the art at the time the invention was made to oriented the components in any position such as parallel direction as disclosed by Bersuch et al in the method of Wanthal et al to allow the components to be properly mounted.

Regarding claim 7, Wanthal et al is silent as to fastening the other components to the preform using fasteners. However, using fastener to fasten components to the preform is well known and conventional as shown for example by Bersuch et al. Bersuch et al disclose using fasteners to mount other components to the preform. (Figure 4)

It would have been obvious to one skilled in the art at the time the invention was made to mount other components to the preform using fasteners as disclosed by Bersuch et al in the method of Wanthal et al to provide an increase in the durability of the damage tolerance of the structure.

Regarding claim 10, Wanthal et al is silent as to the preform has a thickness of at least textile layers. However, providing a preform with at least two textile layers is well known and conventional as shown for example by Bersuch et al. Bersuch et al discloses the preform is form by passing Z-fibers through the layers of the fabrics. (Page 4, Col 1, line 11 to Col 2, line 3)

It would have been obvious to one skilled in the art at the time the invention was made to provide the preform with at least two or more textile layers as disclose by Bersuch et al in the method of Wanthal et al to provide a preform with improves interlaminar shear strength.

Regarding 11, 15, and 16, Wanthal et al does disclose placing the preform and components into a bag and cured. (Page 13, lines 13) Wanthal et al is silent at to applying a vacuum to the bag and applying forces to the preform and components

during curing. Bersuch et al discloses applying vacuum and pressure to the preform and components during curing. (Figure 2)

It would have been obvious to one skilled in the art at the time the invention was made to provide a vacuum bag and applying a pressure across the outer surface of the preform as disclosed by Bersuch et al in the method of Wanthal et al to provide a smooth and uniform joint.

9. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Sheahen et al (Robust composite Sandwich Structures) and Hartman (U.S. 3,639,189).

Regarding claims 17 and 20, Wanthal et al discloses a method of jointing two components together using a 3-D preform. The method includes provide a T-shape preform, infusing the preform with adhesive, and a tool coated with release agent was use to maintain the geometric shape, and placing the preform and components in a bag and autoclave to cure. (Page 7, lines, 1-5 and Page 13, linesn7-22) Wanthal et al is silent as to the adhesive has a tensile strength of less than 6500 pounds per square inch and securing the other components to the leg of the preform with a fastener. Sheahen et al discloses method of forming joints with preforms. The method includes using a fastener to mount other components to the leg of the preform. (Page 7, Col 1, lines 36-47 and Figure 5)

It would have been obvious to one skilled in the art at the time the invention was made to mount other components with fasteners to the preform as disclosed by

Sheahen et al in the method of Wanthal et al to provide a strong and secure mounting for high load requirement. Sheahen et al is silent as to the adhesive has a tensile strength of less than 6500 pounds per square inch. However, one in the art would appreciate that any adhesive with a tensile strength of less than 6500 pounds per square inch can be used to form the joints. For example, Hartman discloses an adhesive composition with a tensile strength of 2200 pounds per square inch and a peel strength of 40 and 45 pounds per inch. (Col 3, lines 24-57) One reading Hartman would be motivated to use the adhesive, which provide excellent adhesion to a variety of substrate such as metal.

It would have been obvious to one skilled in the art at the time the invention was made to provide an adhesive with a tensile strength of less than 6500 pounds per square inch and a peel strength of over 15 pounds per inch as disclosed by Hartman in the method of Wanthal et al to provide a strong adhesive with excellent adhesion to a variety of substrate such as metal to ensure a strong and reliable joint.

Regarding claims 18 and 19, Wanthal et al discloses using a tool coated with release agent to maintain the geometric shape, which would distribute the inward force across the preform. (Page 13, lines 12-13)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P Chan whose telephone number is 703-305-3175. The examiner can normally be reached on Monday-Friday 7:30AM-12:00PM and 1:00PM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Sing P Chan
Examiner
Art Unit 1734

spc
November 22, 2002

RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700